

REMARKS

Claims 2 and 15 are rejected under 35 U.S.C. 112 as being indefinite in defining the “acute angle”. Claim 2 is amended above to clarify the angle of reference. Claim 15 is amended above to provide antecedent basis. No new matter has been added.

Drews (sidewall)

Claims 1, 2, 4-9, 14-15 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 (US 4,284,302) in view of Fronek et al (US 5,848,769) and optionally Drews 290 (US 4,180,290). This rejection is respectfully traversed for the following reasons. The Drews reference is no more relevant than the previously cited art that relates to the use of flutes for the purpose of reducing drag on a vehicle. There is no teaching or suggestion in Drews as to the use of acute projections dimensioned and configured as defined in the claims. Specifically, Drews teaches fluted projections that are in the range of about 1/16 to 1/8 in., which may be significantly smaller or “microscopic”. Flutes of this magnitude are decidedly different from the protrusion dimensions as set forth in the subject claim. The general language of Drews that the flutes may be smaller or “microscopic” must be taken in context of the purpose of the Drews configuration, that is, to streamline the external surfaces of an automobile for the purpose of reducing drag. There is no teaching in Drews that would instruct one of skill in the art to reduce flutes of about 1/16 to 1/8 inches down to .2 to 100 micrometers for a purpose unrelated to the problems that the Drews disclosure is intended to address. It is significant to note that Drews specifically states that “size is not critical but will normally be as small as practical to produce the desired interaction”. This desired interaction is “developing increased propulsions efficiency by reducing opposing forces acting on the vehicle”. (See Drews col.1, lines 5-10). Thus the range of sizes taught by Drews for its intended purpose of reducing vehicle drag is limited by that objective. For the Examiner to extrapolate the teachings of Drews in which the preferred flute size is on the order of 1/16 to 1/8 inches to equate with the .2 to 100 micrometers recited in the claims is not properly founded and based solely on a re-constructing of Drews based solely on hindsight.

In contrast, as stated in the specification and as achieved by structure defined in the claims, the projections of the invention are intended to address the problem of providing channels for water evacuation that do not create structural traps for dirt and debris. Drews

flutes at 1/16 to 1/8 inch would not be functional to meeting the dual objectives of providing dirt resistance and water evacuation. The sizing of the Drews channels would create dirt traps for collecting debris.

Moreover, it is not clear from Drews as to what the lower limit of the Drews flutes can be so as to be “practical to produce the desired interaction”. Drews would not enable one skilled in the art to practice the claimed invention for there is neither a clear instruction in Drews as to the definition of “size”, nor an indication of what that size limit can be so as to produce the “desired interaction”. Drews does not even define the term “size” and it is unclear as to whether Drews is referencing length, width, height of the projections. In contrast, the claimed invention recites the height at the apex in specifying a range of heights that is neither taught nor suggested by the Drews reference.

It is further unclear from Drews as to what is “microscopic”. The lower limit inferred by Drews could be above Applicants’ claimed range. Drews further states that the size of its projections is limited by two conditions: small as possible; but large enough to achieve a “sufficient efficiency”. The Drews specification is of little or no use as instruction to one skilled in the art for neither limit is sufficiently specific to be used as a design criteria. At what size would Drews “efficiency” begin? Such ambiguous and nonspecific limitations cannot be used by one of ordinary skill in achieving the subject claimed invention. Drews, as explained above, is even less clear in that it does not teach how to measure the “size”; how to measure “efficiency”; it does not define “sufficient efficiency”, or define “microscopic”. The invention, on the other hand, as claimed, discloses a specific range for a specific application. Applicants therefore maintain that Drews is deficient in teaching projections of the specified and claimed configuration and height.

The present invention discloses a surface configuration that provides dirt-repellence and water-repellence and is self-cleaning. In addition, the projections and their orientation provide a visual differentiation in the surface. In order to be effective in meeting all three of the objectives, the invention structure needs to be smaller than the size of dirt particles. See para. 7-9 and 15 of the specification. Drews, however, teaches a projection size that is functionally incapable of meeting any of the design objectives. Drews serves to reduce air resistance. That is the only stated objective of the Drews configuration and the projections disclosed by Drews would not be of a size to functionally meet the objectives of the invention. Drews, accordingly, is an insufficient reference to provide a basis for rejecting the claimed invention.

The addition of Fronek to Drews does not overcome the deficiencies of the primary reference. Nor is there any teaching in either reference that would instruct one of skill in the art to make the selective combination of features that the Examiner is proposing to be obvious. Fronek lacks projections that meet the limitations of the claims as to being undercut and within a specific height range. Drews also fails to meet the limitations of the claims for the reasons discussed above. In addition, as the Examiner notes, Fronek is intended to be used for the sole objective of reducing drag in an article. The non-undercut Fronek projections would not effectively meet the objectives of the invention as to dirt and water repellence. The Examiner is incorrect in concluding that the present invention does not achieve unexpected results in view of the applied art for neither reference individually or in combination can accomplish the stated objectives of the invention.

At to the dependent claims, the combination of Drews and Fronek is insufficient basis for rejection of the claims for at least the reasons set forth above. Moreover, there is not instruction in Drews or Fronek for a plane cutting the radially outer surface at an angle tangent to the first side of the projection at a height not exceeding 75% (claim 4 depending from claims 3 and 1). Nor can Applicants agree that the limitations in claim 5 are met in FIG. 5 of Drews. Compare FIG. 5 of Drews with the claimed angle of the invention as shown in FIG. 7. Rows of neighboring projections in Drews' FIG. 5 are oriented such that their longitudinal axis are parallel, not at the claimed angle of claim 5.

Nor do the references teach projections having the structure of claim 1 wherein the projections are within a distance of 0 to 100 micrometers from each other (claim 6).

Claim 3 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 in view of Fronek et al and optionally 290 and further in view of Rethorst (US 3,523,661). This rejection is respectfully traversed for at least the reasons set forth above for the combination of Drews and Fronek and for the following additional reasons. There is no teaching in either Drews or Fronek for a rounding of an apex as set forth in the claims. Rethorst teaches an asymmetric diffuser for reducing drag in an aircraft wing. One of ordinary skill in the art would not be led toward the combination of disparate references that the Examiner is proposing to be obvious. No combination of the references would be possible save by the improper use of hindsight using the invention disclosure. The Examiner has pointed to no teaching in any of the references that would encourage one skilled in the art to look to projections applied to the problem of drag reduction for instruction in tire construction where dirt and water repellence, and visual distinction, are competing design

objectives.

Claims 10-13, 16 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 in view of Fronek et al and optionally Drews 290 and further in view of Heinen (GB2,363,100 or US 6415835 or Ohsawa (US 2001/0032691). This rejection is respectfully traversed at least for the above reasons as to the combination of Drews, Fronek and for the following additional reasons.

The cited collective art simply fails to teach or suggest a projection falling within the parameters of the claimed invention. Ohsawa discloses an angle alpha between a long side A of a projection and a short side B that is substantially ninety degrees. The Examiner in a previous office action to the parent application has acknowledged that Ohsawa does not recite a projection falling within the parameters of the claimed invention. Applicants do not dispute that Ohsawa shows asymmetrical projections but, rather than rendering the invention obvious, the fact that the asymmetrical projections of Ohsawa lie outside the claimed parameters of the invention undercut channels is strong evidence of non-obviousness. The enhanced water and dispersement achieved by the present invention is not achieved by Ohsawa and there is no teaching or suggestion in the reference as to the modification proposed by the Examiner.

Likewise, Heinen teaches in FIG. 4 an asymmetrical projection but, like Ohsawa, the Heinen angle alpha between longer side A and shorter side B does not lie within the undercut claimed parameters. Heinen, in short, is cumulative to Ohsawa and both references, whether considered singularly, or in combination, fail to teach or suggest an undercut projection having an angle of inclination falling within the claimed invention specifications. The combination proposed in the rejection of claims 10-13 is therefore deficient in teaching the claimed invention given that the references each have structures inconsistent with the claimed invention. There is no instruction in Drews, Fronek, Heinen or Ohsawa that could possibly lead one skilled in the art to combine certain isolated features but not combine other features. That the references are intended for different applications and objectives (drag reduction versus dirt and water repellence) makes the Examiner's proposed combination even more improbable and remote.

As to claims 16 and 18, a mold for creating a tire having projections in which the angle between projection surfaces range from five to sixty degrees is not present in any teachings of Ohsawa. Severely sloping projections having a height that is within a 1 to 100 micrometer range is not taught by the reference. The conclusion that it would be obvious to

modify the reference in order to achieve the invention is, accordingly, considered by Applicants to be pure hindsight and an improper basis for rejection of the pending claims.

Applicants reiterate that Ohsawa has a pitch less than two times the depth but does not have an undercut shorter second side in each projection such that the angle between the longer and shorter sides of each projection falls within the prescribed range.

Claims 15, 16 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 in view of Fronek et al and optionally Drews 290 and further in view of Kemp et al (US 6,253,815). This rejection is respectfully traversed for at least the reasons set forth above and for the following additional reasons. The Kemp reference, as the Examiner noted in a previous office action in the parent application, does not teach projections lying within the prescribed and claimed range of inclinations. Indeed, Kemp teaches, as the Examiner noted, a projection having substantially a ninety-degree angle between projection sides. Moreover, the Kemp projections have a height falling outside of the height of the projections claimed in the application. Given that Kemp directly teaches away from the claimed invention, it is incongruous to hold that a modification of Kemp toward the claimed invention would be obvious. Nothing in Kemp or Ohsawa provides instruction to their combination and modification. The invention teaches a low projection height (not found in Kemp) that gives a surface a fine texture while the projection of the invention is specifically recited to fall within a range of inclinations that will effectively eliminate fluid and dirt from the surface. Such a capability is not found in either Kemp or Ohsawa. For the aforesaid reasons, dependent claim 15 (from claim 1), independent claim 15, and dependent claim 18 are considered patentable over the cited art. Applicants claim in claim 1 and 16 and, by incorporation, their dependent claims, a specific projection structure and size. No cited art teaches such structure in a mold.

As to claim 15, no reference teaches lettering. The Examiner considers the Kemp reference to suggest lettering merely because Kemp suggests structure that visually differentiates a surface. Applicants note that it is the structure of claim 15 in combination with claim 1 that determines the patentability of claim 15. Kemp does not suggest lettering achieved by undercut projection structure set forth in claim 1. For this reason, claim 15 is considered patentably distinct as well.

Claim 17 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 in view of Fronek et al and optionally Drews 290 as applied above and further in view of Japan 219 (JP 6-40219) or Baker (US 5,603,796). This rejection is respectfully traversed at

least for the reasons set forth above and for the following additional reasons. No teaching in Japan 219 or Baker is directed at the use of tape in the steps of claim 17 in the process of making a tire having undercut projections configured as claimed. The Examiner has pointed to no teaching from Drews, Fronek, Japan 219, or Baker that remotely suggest utilizing tape having projections in the method claimed. Neither Japan 219 nor Baker relates to the use of tape in such a procedure. It is therefore an unsupported and improper conclusion that forms the basis for the rejection.

Tread

Claims 1-16 and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsawa (US 2001/0032691) in view of at least one of Lobert et al (US 4,750,693), Drews 302 and Drews 290 and optionally in view of Japan '135 (JP 11-59135). This rejection is respectfully traversed for at least the reasons set forth above in regard to the Drews reference and for the following additional reasons. Drews 290 adds nothing to the Drews 302 reference and is, therefore, deficient for the reasons set forth previously in regard to Drews 302. The Japan '135 and Lobert references do not teach projections that fall within the undercut construction and angle range of the claimed invention. Japan '135 projections have parallel sides. See FIG. protrusions 17. Lobert teaches a sawtooth configuration for drag reduction in airborne, waterborne and space vehicles. The projections of Lobert are for entirely different purposes and do not fall within the range of projection heights defined in the claims.

Ohsawa discloses an angle alpha between a long side A of a projection and a short side B that is substantially ninety degrees. The Examiner, in the First Office Action to parent application, 10/024,869, dated 11/19/2003, states on page 2 that: "Ohsawa does not specifically recite defining an angle alpha of 5-60 degrees". The specific teachings of Ohsawa are, therefore, deficient in meeting the claim limitations. Nor is there the suggestion that the Examiner is proposing. Applicants do not dispute that Ohsawa shows asymmetrical projections but, rather than rendering the invention obvious, the fact that the asymmetrical projections of Ohsawa are not undercut and lie outside the claimed parameters of the invention is strong evidence of non-obviousness. Clearly, from Ohsawa, an asymmetrical cross section may have a non-undercut configuration and, therefore, an angle outside of the claimed range. The Examiner is using Ohsawa for a suggestion that the disclosure itself does not teach. The fact that the preferred embodiment of Ohsawa does not meet the claim limitations of the application suggests that the Examiner's interpretation of Ohsawa is not

properly founded.

Moreover, as the Examiner notes, Ohsawa never teaches or suggests projections having undercuts. Therefore, logically, Ohsawa would not be instructive to one skilled in the art on the configuration of undercut projections for the multi-purposes of the invention and, in fact, teaches away from the invention. It is not clear how Ohsawa can instruct one in the art to use its non-undercut projection configuration in applications for dirt and water repellence when the configuration and purpose of Ohsawa projections are decidedly different from the invention.

Drews does not, contrary to the Examiner's contention, teach use of projections within the range of apex heights specified. The Examiner is attempting to stretch the vague and ambiguous language of Drews far beyond its potential for instruction to one in the art. Combining Drews with Ohsawa is not contemplated by either reference.

As to claim 16, Ohsawa does not instruct as to the use of a mold to create the claimed projections. The "suggestion" perceived by the Examiner in the reference is sheer speculation and hindsight. The conclusions of obviousness as to claims 3 and 4 and the limitations therein is also considered by Applicants to be unsupported. As to claim 5, Ohsawa's Fig. 22 does not show neighboring undercut projections in which the neighboring projections are oriented laterally and define with each other an angle within the specified range. As to claim 6, Ohsawa does not teach undercut projections spaced as recited in claim 6. As to claim 7, there is no teaching in Ohsawa or suggestion as to configuring undercut grooves with curved sides as in claim 7. With regard to claim 8, there is no teaching in Ohsawa as to making an undercut projection angle vary within the specified range. As to claim 9, there is no teaching or suggestion in Ohsawa as to varying the height of an undercut projection within the same rubber component. With regard to claims 10-13, there is no teaching in Ohsawa as to configuring and placement of undercut projections as set forth. As to claim 14, the Ohsawa tire includes rubber sidewalls but there is no teaching on the placement of undercut projections therein as claimed. With regard to claim 15, the placement of the grooves in Ohsawa is in the tread for the purpose of water evacuation. Ohsawa cannot, therefore, be deemed instructive on sidewall lettering or sidewall surface differentiation for lettering purposes. As to claim 18, Ohsawa is deficient in teaching the vulcanization of a tire in a mold having projections that are incorporated into a tape pursuant to claim 16.

The Examiner's comments in regard to Applicant's previous arguments with respect to the pending claims are noted but are deemed unconvincing. It is well settled that for a

combination of references to be obvious, there must be some teaching or suggestion in the references that would lead one skilled in the art to make the combination.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. *Bott v. Four Start Corp.*, 218 USPQ 358 (D.Ct, ED Mich 1983)(citing *Stevenson v. ITC*, 204 USPQ 276, 280 (CCPA 179)), “to be relevant, the area or art should be ‘where one of ordinary skill in the art would be aware that similar problems exist.’” Thus, to be relevant, the prior art must be in an area where one of ordinary skill in the art would be aware that similar problems exist. The problems that the invention solves are: dirt repellence and water repellence in combination with the capability for visible surface differentiation. The Examiner has pointed to no teaching that addresses these multiple and competing problems. Rather, the references are directed to a totally different set of problems, such as reduction of drag in a vehicle. The Examiner’s argument that no unexpected results are present invention is unsupported argument and conclusion. One skilled in the art would readily recognize the attainment by the claimed invention of the objectives found in the specification; objectives that cannot be achieved by any of the cited art singularly or in combination.

As to the differing objectives addressed by the cited art vis a vis the claimed invention, authority is well settled. Mere assertion by the Examiner that the references relate generally to a tire does not suffice in establishing a *prima facie* case of obviousness in their combination. In rejecting claims under 35 USC § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993)

The reason, suggestion or motivation to combine [references] may be found explicitly or implicitly: (1) in the prior art itself; (2) in the knowledge of those of ordinary skill in the art that certain references are of special interest or importance in the field; or (3) from the nature of the problem to be solved. *Wesley Jessen Corp. v. Coopervision Inc.*, 63 USPQ2d 1897, 1901 (US Central Ca, 2002) (*Ruiz v. A.B. Change Co.*, 234 F.2d 654, 665 (Fed. Cir. 2000)). In the case at hand, (1) none of the cited art itself refers to or would provide a motive to combine the references; (2) one of ordinary skill in the art would not look to design features meant to address an entirely different set of objectives for instruction in dirt and water repellence in combination with visual surface differentiation; and (4) the nature of the problem solved by the invention is different and unrelated to the problem of drag reduction

addressed by the cited art.

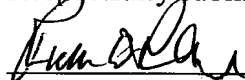
One “cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 1371, 56 USPQ2d 1065 (Fed. Cir. 2000) (quoting In re Fine, 837 F.2d 1071, 1075 (Fed. Cir. 1988)). Such hindsight is precisely the sole basis and means for the selective combination of Drews, Fronek, Rethorst, Heinen, Kemp, Japan 219, Baker, Lobert, Japan ‘135 or Ohsawa art in the manner presented by the Examiner.

The Examiner mis-characterizes the achievement of unexpected results of the invention as attorney argument. The Examiner has not shown how a result that includes simultaneous achievement of reduced hydroplaning , optical and color differentiation, and a reduced dirt in collection channels would not be unexpected when none of the cited art achieves such a result. None of the cited art solves the above set of problems and needs simultaneously in the manner set forth in the claims.

Applicants have pointed to specific claimed structure and how that structure contributes to solving the stated problems set forth in the specification. Applicants further have pointed to the deficiencies in the art toward addressing and solving the stated problems of the invention. The Examiner has denied the existence of unexpected results despite the success of the claimed invention in solving a set of problems unsolved by the prior art. One skilled in the art, upon consideration of the specification’s specific stated objectives of the invention, would readily understand the success of the invention in meeting such objectives.

In view of the above, reconsideration of the application and allowance of all pending claims is requested.

Respectfully submitted,



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